(19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 30 September 2004 (30.09.2004)

PCT

(10) International Publication Number **WO 2004/083991 A3**

(51) International Patent Classification7: H04Q 7/38

H04L 12/28,

(21) International Application Number:

PCT/IB2004/001302

(22) International Filing Date: 18 March 2004 (18.03.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/455,615

18 March 2003 (18.03.2003)

(71) Applicant (for all designated States except US): THOM-SON LICENSING S.A. [FR/FR]; 46, Quai A. Le Galo, F-92100 Boulogne-Billancourt (FR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): BICHOT, Guillaume [FR/FR]; 26 rue de Mont Muran, F-35630 LA CHAPELLE CHAUSSEE (FR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

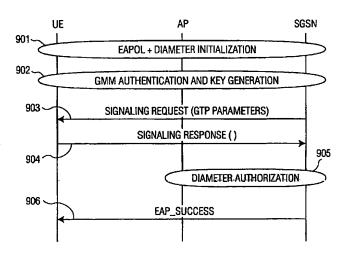
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of
- (88) Date of publication of the international search report: 24 March 2005

[Continued on next page]

(54) Title: AUTHENTICATION OF A WLAN CONNECTION USING GPRS/UMTS INFRASTRUCTURE



(57) Abstract: A method for communicating between a cellular system and a client terminal such as a mobile terminal by way of a standard wireless LAN and the Internet allows data communications to traverse the core of the cellular network, thereby allowing monitoring of the time and volume usage by the subscriber for billing purposes. The mobile terminal has a communication protocol for communicating with the wireless LAN, over which is a EAP/EAPOL protocol. A Radio Adaptation Layer (RAL) protocol overlies the EAP/EAPOL protocol. At the cellular system, a Serving GPRS Support Node establishes initial control contact with the mobile terminal by way of EAP/EAPOL. During authentication, the Support Node gives the mobile terminal parameters for an alternative tunnel connection. Once authorization is complete, the mobile terminal closes the EAP/EAPOL connection and opens a new connection tunnel to the Support Node using the parameters.





For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/28 H04Q7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) $IPC \ 7 \quad H04L \quad H04Q$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/012433 A1 (EKBERG JAN-ERIK G ET AL) 31 January 2002 (2002-01-31) abstract figures 1,2,8,16 paragraph '0256! - paragraph '0262! paragraph '0342! - paragraph '0350!	1-20
Ρ,Χ	WO 03/094438 A (GREGORIO RODRIGUEZ JESUS ANGEL; MONJAS LLORENTE MIGUEL ANGEL (ES); ER) 13 November 2003 (2003-11-13) abstract paragraph '0016! - paragraph '0039! paragraph '0044! - paragraph '0047! claims 1-13	1-20

Further documents are listed in the continuation of box C.	χ Patent family members are listed in annex.
Special categories of cited documents: A* document defining the general state of the art which is not considered to be of particular relevance E* earlier document but published on or after the international filing date L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) O* document referring to an oral disclosure, use, exhibition or other means P* document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
Date of the actual completion of the international search 4 January 2005	Date of mailing of the international search report 17/01/2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Authorized officer Wolf, W

2

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X,P FR 2 842 055 A (NORTEL NETWORKS LTD) 1-20 9 January 2004 (2004-01-09) page 13, line 18 - page 14, line 22 figures 1-4 page 1, line 31 - page 9, line 5 & US 2002/012433 A1 (EKBÉRG JAN-ERIK G ET AL) 31 January 2002 (2002-01-31) Α "Broadband Radio Access Networks (BRAN); 1-20 HIPERLAN Type 2; Requirements and Architectures for Interworking between HIPERLAN/2 and 3rd Generation Cellular systems; ETSI TR 101 957" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, SOPHIA-ANTIPO, FR, vol. BR, no. V111, August 2001 (2001-08), XP014005038 ISSN: 0000-0001 paragraph '0006! - paragraph '7.2.1! paragraph '0008! - paragraph '08.2!

2

nformation on patent family members

tional Application No
.../IB2004/001302

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
US	2002012433	A1	31-01-2002	AU BR CA CN EP WO JP ZA	2683801 A 0109651 A 2403521 A1 1430835 T 1273128 A1 0176134 A1 2003530012 T 200207299 A	15-10-2001 22-04-2003 11-10-2001 16-07-2003 08-01-2003 11-10-2001 07-10-2003 02-05-2003
WO	03094438	Α	13-11-2003	WO	03094438 A1	13-11-2003
FR	2842055	Α	09-01-2004	FR WO	2842055 A1 2004006532 A1	09-01-2004 15-01-2004
US	2002012433	A1	31-01-2002	AU BR CA CN EP WO JP ZA	2683801 A 0109651 A 2403521 A1 1430835 T 1273128 A1 0176134 A1 2003530012 T 200207299 A	15-10-2001 22-04-2003 11-10-2001 16-07-2003 08-01-2003 11-10-2001 07-10-2003 02-05-2003